

REMARKS

Upon entry of this Amendment, claims 1-18 and 20 will remain currently pending, with claims 11-18 and 20 under examination. Claims 1-10 are withdrawn from consideration. Support for the amendment to claim 11 may be found in the specification at, for example, page 26, lines 8 to 11.

In the Office Action identified above,¹ the Examiner:

- a) rejected claims 11 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Shimagaki et al. (U.S. Patent No. 6,953,388, "Shimagaki") in view of Burke (U.S. Patent Application Publication No. 2002/0098789, "Burke") and further in view of Saka (U.S. Patent No. 6,458,013, "Saka");
- b) rejected claims 12-16 under 35 U.S.C. § 103(a) as being unpatentable over Shimagaki in view of Burke and Saka, and further in view of You et al. (U.S. Patent No. 6,663,787, "You"); and
- c) rejected claims 17 and 18 under 35 U.S.C. § 103(a) as being unpatentable over Shimagaki in view of Burke and Saka, and further in view of Jang et al. (U.S. Patent No. 5,702,977, "Jang").

Applicants traverse these rejections for the following reasons.

Rejection of Claims 11 and 20 under 35 U.S.C. § 103(a)

Applicants respectfully traverse the Examiner's rejection of claims 11 and 20 under 35 U.S.C. § 103(a) over Shimagaki in view of Burke and Saka, because a *prima facie* case of obviousness has not been established.

To establish a *prima facie* case of obviousness, the prior art references (separately or in combination) must teach or suggest all the claim limitations. See M.P.E.P. § 2142, 8th Ed., Rev. 5 (August 2006). “[I]n formulating a rejection under 35 U.S.C. § 103(a) based upon a combination of prior art elements, it remains necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed.” *USPTO Memorandum* from Margaret A. Focarino, Deputy Commissioner for Patent Operations, May 3, 2007, p. 2. “[T]he analysis supporting a rejection ... should be made explicit” and it is “important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements in the manner claimed.” *Id.* (citing *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. ___, 82 U.S.P.Q.2d 1385 (2007)).

In this case, a *prima facie* case of obviousness has not been established for at least the reason that the applied references fail to disclose or suggest each and every limitation recited in independent claim 11, from which claim 20 depends. In particular, Shimagaki, Burke, and Saka, taken alone or in combination, fail to teach or suggest, at least, “subjecting [a] treating film to a polishing treatment using . . . a polishing pad . . . disposed on a turntable . . . , said polishing pad having a compression elastic modulus ranging from 300 to 600 MPa,” as recited in amended claim 11.

Amended claim 11 additionally recites “the range of the compression elastic modulus is satisfied while the polishing pad is disposed on the turntable.”

¹ The Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicants decline to automatically subscribe to any statement or characterization in the Final Office Action.

In contrast to the requirements of amended independent claim 11, neither Shimagaki nor Burke discloses or suggests “subjecting [a] treating film to a polishing treatment using . . . a polishing pad . . . disposed on a turntable . . . , said polishing pad having a compression elastic modulus ranging from 300 to 600 MPa,” as recited in claim 1. The Examiner has conceded this point. See Office Action, at page 3.

The Examiner’s additional citation of Saka fails to cure the deficiencies of Shimagaki and Burke. The Examiner alleged that Saka “teaches a polishing pad having a compression elastic modulus of between 300 and 600 MPa.” Office Action, at page 3. However, Applicants explain that while Saka discloses a polishing pad (a Rodel IC1400), Saka’s polishing pad is a composite pad comprising a top layer (Rodel IC1000) and an underlayer. See Saka, col. 11, ll. 54-57. Saka further discloses “[t]he room temperature elastic moduli of *the top pad and the composite pad* were about 500 MPa and 60 MPa, *respectively*.” *Id.* at col. 11, ll. 57-59 (emphasis added). In view of this disclosure, Applicants assert that Saka does not disclose or suggest “a *polishing pad* disposed on a turntable . . . having a compression elastic modulus *ranging* from 300 to 600 MPa,” as recited in claim 11 (emphasis added). Instead, Saka merely teaches a top polishing pad having a fixed compression elastic modulus of 500 MPa, and a composite pad consisting of the top pad and an underlayer, that composite pad having a compression elastic modulus of 60 MPa. Thus, Saka cannot disclose or suggest Applicants’ claimed “polishing pad . . . disposed on a turntable . . . , said polishing pad having a compression elastic modulus ranging from 300 to 600 MPa.” Applicants have amended claim 11 to further clarify that “the range of compression

elastic modulus is satisfied while the polishing pas is disposed on the turntable.”
(emphasis added).

Moreover, regarding the Rodel IC1000, the Planarization Technical Term Dictionary describes on page 120 that the fraction of the pore is about 35%. *See* Appendix A. In other words, the Rodel IC1000 also lacks the claimed requirement that the “polishing pad . . . comprising a matrix, and cells and/or a recessed portion-forming material . . . occupying a region ranging from 0.1% by volume to 5% by volume based on an entire volume of said pad,” as recited in claim 11.

Thus, Saka fails to cure the acknowledged deficiencies of Shimagaki and Burke. For at least the above reasons, no *prima facie* case of obviousness has been established regarding claim 11. Claim 20, which depends from claim 11, is allowable at least due to its dependence. Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. § 103(a) rejection of claims 11 and 20.

Regarding independent claim 11, the Examiner also alleged that claim 11 was obvious because “the applicant has not established the criticality . . . of the elastic modulus, and this elastic modulus has been used in similar devices in the art.” Office Action, at page 4. The Examiner specifically contended that “[t]he specification contains no disclosure of either the critical nature of the claimed elastic modulus or any unexpected results arising therefrom.” *Id.* Applicants respectfully disagree. First, contrary to the Examiner’s assertion, Saka does not disclose use of “this elastic modulus in similar devices.” Applicants’ claimed range of compression elastic modulus

is not "encompassed by the prior art," as alleged by the Examiner at page 4 of the Office Action.

Second, Applicants have in fact demonstrated the criticality of the elastic modulus through experiments. See the specification, at, for example, page 26, lines 8 to 11. Specifically, Saka discloses that "[a] commercial composite pad (Rodel IC1400) was employed in the polishing experiments." Saka, col. 11, ll. 54-55. Moreover, Saka discloses that "[t]he pad comprised a micro porous polyurethane top layer (Rodel IC1000). *Id.* at col. 11, ll. 55-56. By contrast, the specification describes that a Rodel IC1000 should be avoided in the present invention. See the specification at, for example, page 4, lines 18-26; page 36, lines 3-14.

Thus, Applicants have both shown criticality of the claimed "polishing pad. . . disposed on a turntable . . . , said polishing pad having a compression elastic modulus ranging from 300 to 600 MPa" and have shown that the claimed elastic modulus has not been used in similar devices in the art. Accordingly, Applicants respectfully request withdrawal of the rejection of claim 11, based on the alleged failure to establish criticality.

Rejections of Claims 12-16 and 17-18 under 35 U.S.C. § 103(a)

Applicants respectfully traverse the Examiner's rejection of claims 12-16 under 35 U.S.C. § 103(a) as being unpatentable over Shimagaki, Burke, Saka, and further in view of You, and the rejection of claims 17 and 18 under 35 U.S.C. § 103(a) as being unpatentable over Shimagaki, Burke, Saka, and further in view of Jang. The Examiner relies on the disclosure of You only to teach elements recited in dependent claims 12-

16. *See* Office Action, at pages 5-6. Similarly, the Examiner applies Jang to teach an insulating film buried in a trench. *See* Office Action, at page 6.

Even assuming such teachings are present in You and Jang, which Applicants do not concede, You and Jang each fail to overcome the above noted deficiencies of Shimagaki, Burke, and Saka. The deficiencies of the combination of Shimagaki, Burke, and Saka are explained above. In addition, both You and Jang fail to teach or suggest, at least, the claimed "said polishing pad having a compression elastic modulus ranging from 300 to 600 MPa," as recited in claim 11. In fact, both references are entirely silent as to any polishing method, and thus necessarily fail to teach or suggest the claimed compression elastic modulus range of the polishing pad.

Thus, no *prima facie* case of obviousness has been established, and claims 12-18 are allowable at least due to their dependence from independent claim 11. The Examiner should therefore withdraw the rejections of claims 12-18 under 35 U.S.C. § 103(a).

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge
any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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